

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

Claims 1-21 (Cancelled)

Claim 22 (New). A compound selected from the group consisting of:

2-[4-(6-Chloro-pyridazin-3-yl)-piperazin-1-ylmethyl]-5-fluoro-1H-indole;
5-Fluoro-1H-indol-2-yl)-[4-(3-trifluoromethyl-phenyl)-piperazin-1-yl]-methanone;
5-Fluoro-2-[4-(3-trifluoromethyl-phenyl)-piperazin-1-ylmethyl]-1H-indole
hydrochloride;
2-[4-(3-Trifluoromethyl-phenyl)-piperazin-1-ylmethyl]-1H-indol-5-ol;
2-[4-(3-Trifluoromethyl-phenyl)-piperazin-1-ylmethyl]-1H-indole;
(1H-Indol-2-yl)-[4-(2-nitro-phenyl)-piperazin-1-yl]-methanone;
(5-Fluoro-1H-indol-2-yl)-[4-(2-nitro-phenyl)-piperazin-1-yl]-methanone;
(5-Fluoro-1H-indol-2-yl)-[4-(3-trifluoromethyl-phenyl)-piperazin-1-yl]-methanone;
3-[4-(1H-Indol-2-ylmethyl)-piperazin-1-yl]-benzo[d]isothiazole;
5-Fluoro-2-[4-(3-trifluoromethyl-phenyl)-piperazin-1-ylmethyl]-1H-indole;
2-(4-Naphthalen-1-yl-piperazin-1-ylmethyl)-1H-indole;
2-[4-(2-Nitro-phenyl)-piperazin-1-ylmethyl]-1H-indole;
5-Fluoro-2-[4-(2-nitro-phenyl)-piperazin-1-ylmethyl]-1H-indole;
5-Fluoro-2-(4-naphthalen-1-yl-piperazin-1-ylmethyl)-1H-indole;
5-Fluoro-2-(4-pyridin-2-yl-piperazin-1-ylmethyl)-1H-indole;
5-Fluoro-2-[4-(4-fluoro-phenyl)-piperazin-1-ylmethyl]-1H-indole;
5-Fluoro-2-(4-pyrimidin-2-yl-piperazin-1-ylmethyl)-1H-indole;
(5-Fluoro-1H-indol-2-yl)-(4-pyridin-2-yl-piperazin-1-yl)-methanone;
2-(4-Pyridin-2-yl-piperazin-1-ylmethyl)-1H-indole;
(1H-Indol-2-yl)-(4-pyridin-2-yl-piperazin-1-yl)-methanone;
2-(4-Pyridin-2-yl-piperazin-1-ylmethyl)-1H-indole;

(2'α, 3'aβ, 6'aβ)-1-(4-Fluoro-phenyl)-4-(5'-phenyl-1', 2', 3',- 3'a, 4', 6'a-hexahydro-pentalen-2'-yl)-piperazine dihydrochloride;

(2'α, 3'aβ, 5'α., 6'aβ)-5'-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-2'-phenyl-octahydro-pentalen-2'-ol maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-1-(4-Fluoro-phenyl)-4-(5'-phenyl-octahydro-pentalen-2'-yl)-piperazine dihydrochloride;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-hydroxy-5'-phenyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydrospro[isobenzofuran-1(3H), 2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-5'-[4-(2-Methoxyphenyl)-piperazin-1-yl]-2'-phenyl-octahydro-pentalen-2'-ol maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-(4-Fluorophenyl)-5'-[4-(5-fluoropyrimidin-2-yl)-piperazin-1-yl]-octahydro-pentalen-2'-ol maleate;

(2'α, 3'aβ, 5'α., 6'aβ)-2-Fluoro-4-{4-[5'-(4-fluorophen yl)-5'-hydroxy-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;

(2'α, 3'aβ, 5'α., 6'aβ)-2'-(4-Fluoro-phenyl)-5'-[4-(4-fluorophenyl)-piperazin-1-yl]-octahydro-pentalen-2'-ol maleate;

(2'α, 3'aβ, 6'aβ)-5-Fluoro-2-[4-(5'-phenyl-1', 2', 3', 3'a, 4', 6'a-hexahydro-pentalen-2'-yl)-piperazin-1-yl]-pyrimidine maleate;

(2'α, 3'aβ, 6'aβ)-2-Fluoro-4-[4-(5'-phenyl-1', 2', 3', 3'a, 4', 6'a-hexahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(5'-phenyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-pyrimidine maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-phenyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-trifluoromethyl-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;

(2'α, 3'aβ, 6'aβ)-2-Fluoro-4-{4-[5-(2-methoxy-phenyl)-1', 2', 3', 3'a, 4', 6'a-hexahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4(4-[5'-(2-methoxy-phenyl)-octahydro-pentalen-2'-yl]-

piperazin-1-yl]-benzonitrile maleate;
 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(1H-indol-3-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;
 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-methanesulfonyl-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;
 (2'α, 3'aβ, 5'β, 6'aβ)-2-Fluoro-4-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydrospiro[isobenzofuran-1(3H), 2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-benzonitrile maleate;
 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-1-benzopyran-2, 2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-benzonitrile maleate;
 (2'α, 3'aβ, 5'β, 6'aβ)-2-Fluoro-4-[4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-1-benzopyran-2, 2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-benzonitrile maleate;
 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-trifluoromethoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;
 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-fluoro-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;
 (2'α, 3'aβ, 5'α, 6'aβ)-2-Cyano-4-{4-[5'-(2-fluoro-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;
 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-pyridin-2-yl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile dihydrochloride;
 (2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-{4-[5'-(2-methoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-pyrimidine maleate;
 (2'α, 3'aβ, 5'α, 6'a)-2-Fluoro-4-{4-[5'-(6-fluoro-2-ox-o-2, 3-dihydro-benzoimidazol-1-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile dimesylate;
 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(6-fluoro-2-methylbenzoimidazol-1-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile dimesylate;
 (2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydrospiro[isobenzofuran-1(3H), 2'(1'H)-pentalen]-5'-yl)-piperazin-1-yl]-pyrimidine;
 (2'β, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydrospiro[isobenzofuran-1(3H), 2'(1'H)-pentalen]-5'-yl)-piperazin-1-yl]-pyrimidine;
 (2'α, 3'aβ, 5'α, 6'aβ)-1-Phenyl-4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-1-benzopyran-2, 2'(1'H)-pentalen]-5'-yl]-5'-yl)-piperazine maleate;

(2'β, 3'aβ, 5'α, 6'aβ)-1-Phenyl-4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-1-benzopyran-2, 2'(1'H)-pentalen]-5'-yl]-5'-yl)-piperazine maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-3-[5'-(4-Phenylpiperazin-1-yl)-octahydro-pentalen-2'-yl]-1H-indole maleate;

(2'α, 3'aβ, 6'aβ)-1-Phenyl-4-(5'-phenyl-1', 2', 3', 3'a, 4', 6'a-hexahydro-pentalen-2'-yl)-piperazine dimaleate;

(2'α, 3'aβ, 5'α, 6'aβ)-1-Phenyl-4-(5'-phenyl-octahydro-pentalen-2'-yl)-piperazine maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-6-Fluoro-2-methyl-1-[5'-(4-phenyl-1-piperazin-1-yl)-octahydro-pentalen-2'-yl]-1H-benzimidazole dimaleate;

(2'α, 3'aβ, 5'β, 6'aβ)-1-[5'-(4-Fluorophenoxy)-octahydro-pentalen-2'-yl]-4-phenyl-piperazine maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-2-[5'-(4-Phenyl-piperazin-1-yl)-octahydro-pentalen-2'-yl]-isoindole-1, 3-dione maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-N-(2-{5'-[4-(5-Fluoro-pyrimidin-2-yl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-phenyl)-acetamide maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-N-(2-{5'-[4-(4-Cyano-3-fluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-phenyl)-acetamide maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-oxo-2, 3-dihydro-benzimidazol-1-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile mesylate;

(2'α, 3'aβ, 5'α, 6'aβ)-1-{5'-[4-(5-Fluoro-pyrimidin-2-yl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-1, 3-dihydro-benzimidazol-2-one mesylate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-{5'-[4-(4-Cyano-3-fluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-benzamide maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-N-[5'-(4-Phenyl-piperazin-1-yl)-octahydro-pentalen-2'-yl]-benzamide maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-2-Fluoro-44-[5'-(4-fluoro-phenoxy)-octahydro-pentalen-2'-yl]-piperazin-1-yl)-benzonitrile maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-5-Fluoro-2-(4-[5'-(4-fluorophenoxy)-octahydro-pentalen-2'-yl]-piperazin-1-yl)-pyrimidine maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-2-Fluoro-4-{4-[5'-(2-oxo-2, 3-dihydro-benzimidazol-1-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(3-methoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(4-methoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-m-tolyl-octahydropentalen-2'-yl)-piperazin-1-yl]-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-p-tolyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile maleate;

(2'β, 3'aβ, 5'β, 6'aβ)-1-[5'-(4-Fluoro-phenoxy)-octahydro-pentalen-2'-yl]-4-phenyl-piperazine maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-o-tolyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-1-Phenyl-4-[5'-(3-pyrrolidin-1-ylmethyl-phenyl)-octahydro-pentalen-2'-yl]-piperazine dimaleate;

(2', 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(3', 3'a, 4', 5', 6', 6'-a-hexahydro-3'a, 6'a-dimethylspiro[isobenzofuran-1(3H), 2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-pyrimidine maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(3', 3'a, 4', 5', 6', 6'-a-hexahydro-3'a, 6'a-dimethylspiro[isobenzofuran-1(3H), 2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-pyrimidine maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-4-{4-[5'-(1, 3-Dioxo-1, 3-dihydro-isoindol-2-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-2-fluoro-benzonitrile maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-2-{5'-[4-(5-Fluoro-pyrimidin-2-yl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-isoindole-1, 3-dione maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-6-fluoro-1-benzopyran-2, 2'(1'H)-pentalen]-5'-yl)-5'-yl]-1-piperazinyl]-benzonitrile maleate;

(2'β, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-6-fluoro-1-benzopyran-2, 2'(1'H)-pentalen]-5'-yl)-5'-yl]-1-piperazinyl]-benzonitrile maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(5'-o-tolyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-pyrimidine maleate;

(2'β, 3'aβ, 5'α, 6'aβ)-1-{5'-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-

yl}-1,3-dihydro-benzoimidazol-2-one maleate;
 (2'β, 3'aβ, 5'α, 6'aβ)-2-[5'-(4-Phenyl-piperazin-1-yl)-octahydro-pentalen-2'-yloxy]-1H-benzoimidazole maleate;
 (2'α, 3'aβ, 5'α, 6'aβ)-5-Chloro-2-{4-[5'-(2-methoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-pyrimidine maleate;
 (2'α, 3'aβ, 5'α, 6'aβ)-5-Chloro-2-[4-(5'-o-tolyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-pyrimidine maleate;
 (2'β, 3'aβ, 5'α, 6'aβ)-2-{5'-[4-(3, 4-Difluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-isoindole-1, 3-dione maleate;
 (2'β, 3'aβ, 5'α, 6'aβ)-2-{5'-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-isoindole-1, 3-dione maleate; and
 (2'β, 3'aβ, 5'α, 6'aβ)-1-{5'-[4-(3, 4-Difluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-1, 3-dihydro-benzoimidazol-2-one maleate.

Claim 23. (New) A compound according to claim 22, wherein said compound is selected from the group consisting of:

2-[4-(3-Trifluoromethyl-phenyl)-piperazin-1-ylmethyl]-1H-indole; 5-Fluoro-2-[4-(3-trifluoromethyl-phenyl)-piperazin-1-ylmethyl]-1H-indole;
 5-Fluoro-2-[4-(4-fluoro-phenyl)-piperazin-1-ylmethyl]-1H-indole;
 5-Fluoro-2-[4-(4-fluoro-phenyl)-piperazin-1-ylmethyl]-1H-indole; 5-Fluoro-2-(4-pyridin-2-yl-piperazin-1-ylmethyl)-1H-indole;
 2-[4-(6-Chloro-pyridazin-3-yl)-piperazin-1-ylmethyl]-5-fluoro-1H-indole;
 5-Fluoro-2-(4-[5'-fluoro]pyridin-2-yl-piperazin-1-ylmethyl)-1H-indole;
 2-(4-pyridin-2-yl-piperazin-1-ylmethyl)-1H-azaindole; 5-Fluoro-2-(4-pyridin-2-yl-piperazin-1-ylmethyl)-1H-azaindole; and
 2-[4-(4-fluoro-phenyl)-piperazin-1-ylmethyl]-1H-azaindole.

Claim 24. (New) A method for treating a disorder of the dopamine system in a mammal, comprising administering to said mammal an amount of a D4 dopamine receptor selective compound according to claim 22 or a pharmaceutically acceptable salt thereof, that is effective in treating such disorder.

Claim 25. (New) A method according to claim 24, wherein disorders of the dopamine system are selected from the group consisting of psychotic disorders, movement disorders, gastrointestinal disorders, chemical abuse, chemical dependencies, substance abuse, vascular and cardiovascular disorders, ocular disorders and sleep disorders.

Claim 26. (New) A method according to claim 25, wherein psychotic disorders are selected from the group consisting of affective psychosis, schizophrenia, and schizoaffective disorders.

Claim 27. (New) A pharmaceutical composition for treating a disorder of the dopamine system in a mammal, comprising administering to said mammal an amount of a D4 dopamine receptor selective compound according to claim 22, or a pharmaceutically acceptable salt thereof, that is effective in treating such disorder.